

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* NICOLAS VOUTE,  
EGISTO BOSCHETTI and PIERRE GIROT

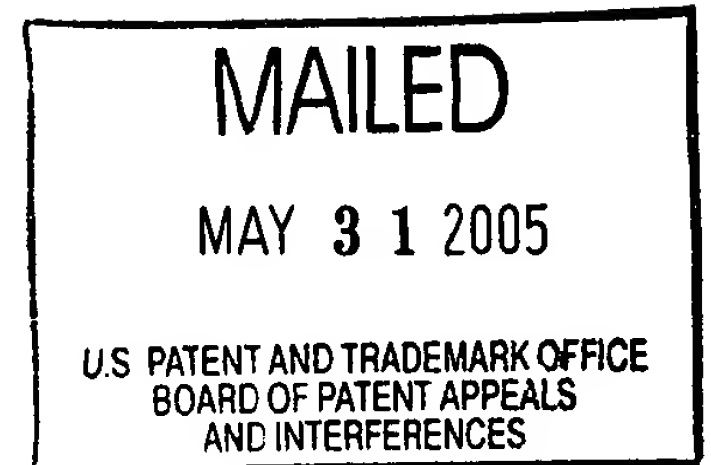
---

Appeal No. 2005-0209  
Application 09/274,014

---

HEARD: May 18, 2005

---



Before GARRIS, WARREN and JEFFREY T. SMITH, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal*

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 22 and 59 through 63. Claims 23 through 58 and 66 through 66 are also of record and have been withdrawn from consideration by the examiner under 37 CFR § 1.142(b).

Claims 1, 2, 7 and 11 illustrate appellants' invention of a dense mineral oxide solid support for purification of biological macromolecules (specification, e.g., page 1), and are representative of the claims on appeal:

1. Dense mineral oxide solid supports comprising:

(a) a mineral oxide matrix having an external surface and pores, wherein the pores have a pore volume which is less than 30% of the total volume of the mineral oxide matrix, and

(b) an interactive polymer network which fills the pores and is coated on the surface of the mineral oxide matrix, so that subsequent interaction with macromolecules occurs on the external surface area of the support.

2. The dense mineral oxide solid supports of Claim 1, having a density in the range of about 1.7 to 11.

7. The dense mineral oxide solid supports of claim 1, wherein the pore volume is 5% to 2% of the total volume of the mineral oxide matrix.

11. The dense mineral oxide solid supports of claim 10, wherein the soluble organic polymer is a polysaccharide or a mixture of polysaccharides.

The references relied on by the examiner are:

Davis, Jr., et al. (Davis)	4,203,772	May 20, 1980
Giro et al. (Giro)	5,445,732	Aug. 29, 1995

The examiner has rejected appealed claims 1 through 22 and 59 through 63 under 35 U.S.C. § 103(a) as being unpatentable over Giro alone or in view of Davis (answer, pages 8-12).

Appellants group the appealed claims as claims 1, 4, 5, 9, 10 and 13 through 22, claims 2, 3, 6 and 59 through 63, claims 7, 8 and 60 and claims 11-12, and provides arguments for the separate patentability of the claims of each group (brief, e.g., pages 9-10). Thus, we decide this appeal based on appealed claims 1, 2, 7 and 11 as representative of the four groups of claims. 37 CFR § 1.192(c)(7) (2003); *see also* 37 CFR § 41.37(c)(1)(vii) (effective September 13, 2004; 69 Fed. Reg. 49960 (August 12, 2004); 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)).

We affirm.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the answer and to the brief and reply brief for a complete exposition thereof.

#### *Opinion*

We have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the supported position advanced by the examiner that, *prima facie*, the claimed dense mineral oxide solid supports encompassed by appealed claims 1, 2, 7 and 11 would have been obvious over Giro alone or as combined with Davis to one of ordinary skill in this art at the time the claimed invention was made. In view of the established *prima facie* case of obviousness, we again consider the record as a whole with respect to this ground of rejection in

light of appellants' rebuttal arguments in the brief and reply brief. *See generally, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

As an initial matter, we find that when the claim terms are given their broadest reasonable interpretation in light of the written description in the specification as interpreted by one of ordinary skill in the art, and without reading into the claims any limitation or particular embodiment disclosed in the specification, *see, e.g., In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), the plain language of claim 1 specifies dense mineral oxide solid supports comprising at least any mineral oxide matrix having an external surface and pores which have a volume of any amount less than 30% of the total volume of the mineral oxide matrix, and an interactive polymer matrix of at least any polymer(s) which will interact with any macromolecule(s), fill at least some of the pores of the mineral oxide matrix and coat the external surface of the dense mineral oxide matrix at least to the extent that at least some subsequent interaction with the macromolecule(s) occurs in and on the interactive polymer network coated on the external surface of the dense mineral oxide solid support.

Claim 2 modifies the dense mineral oxide support of claim 1 by specifying a density in the range of about 1.7 to 11. Claim 7 modifies the dense mineral oxide support of claim 1 by specifying that the pore volume is 5% to 25% of the total volume of the mineral oxide matrix. Claim 11 modifies the dense mineral oxide support of claim 1 through claim 10 by specifying that the interactive polymer network comprises at least a polysaccharide or a mixture of polysaccharides, but does not require that the polysaccharide(s) must interact with the macromolecules.

The transitional terms "comprising" in claim 1 and "comprises" in claim 11 require that the encompassed dense mineral oxide solid supports include at least the specified mineral oxide matrix and the interactive polymer network and opens the claims to include dense mineral oxide solid supports that further contain any additional material(s) and/or structure(s). Thus, for example, claim 11 can include dense mineral oxide solid supports in which the interactive polymer network can contain any additional polymer(s) in the pores and/or coated on the external

surface of the support which interact with other macromolecules and/or groups of the mineral oxide matrix. *See generally, Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555, 35 USPQ2d 1801, 1802 (Fed. Cir. 1995) (“The claimed composition is defined as comprising - meaning containing at least - five specific ingredients.”); *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) (“As long as one of the monomers in the reaction is propylene, any other monomer may be present, because the term ‘comprises’ permits the inclusion of other steps, elements, or materials.”).

We note here that contrary to appellants’ arguments (brief, e.g., pages 14-15; reply brief, pages 2-3), we find no limitation in any of appealed claims 1, 2, 7 and 11 which precludes interaction with macromolecules from occurring in or on the interactive polymer network occupying the pores of the mineral oxide matrix in addition to the interaction with macromolecules occurring in and on the interactive polymer network coated on at least a part of the surface of the mineral oxide matrix.

Appellants raise several issues with respect to the examiner’s findings that the teachings of Girot alone satisfies the pore volume of the mineral oxide matrix requirements of claims 1 and 7 without regard to the mineral oxide employed, and particularly when combined with Davis with respect to zirconium oxide, as well as alone satisfies the requirement of claim 1 that the interactive polymer matrix fills the pores and coats the surface of the mineral oxide matrix along with the further requirement of claim 11 that the interactive polymer network includes a polysaccharide.

Considering first the interactive polymer network requirement, appellants submit that in Girot, “molecules diffuse into a polymeric lattice contained within pores” which does not suggest “interaction on the external surface area of the support” as required by the claims, citing col. 19, l. 32, to col. 20, l. 16, and **FIG. 5** of the reference (brief, pages 14-15; reply brief, pages 2-3). The examiner finds that Girot teaches “an interactive polymer network which fills the pores and is coated on the surface of the mineral oxide matrix . . . so that subsequent interaction with macromolecules occurs on the external surface of the support,” citing, among others, col. 5, ll. 3-62, and col. 6, ll. 31-35 (answer, pages 3-4 and 5).

We agree with the examiner. Girot describes the porous solid matrix, including porous mineral oxide matrices, as having innate groups on the interior and exterior surfaces that can enter into undesirable interactions with biological molecules, and would have taught forming a polymer network by contacting “the surfaces of the matrix” with a “passivation mixture,” comprising a main monomer, a passivating monomer and a crosslinking agent, to form an interactive polymer network that “deactivate” such innate groups and interacts with biological macromolecules (col. 5, ll. 3-39 and 50-62). Indeed, the passivating mixture forms a three-dimensional network on the surfaces of the matrix, including the internal surfaces, that is, in the pores (e.g., col. 6, ll. 20-60, col. 10, l. 62, to col. 11, l. 21). We find that Girot **FIG. 5** illustrates the network on the internal surfaces of a pore (e.g., col. 12, ll. 63-68), and one of ordinary skill in the art would not have inferred from this disclosure or the disclosure at col. 19, l. 32, to col. 20, l. 16, which also involves the interior or internal surfaces of a pore, that the interactive polymer network is formed solely on the interior or internal surfaces of the pore. Indeed, we find no disclosure in the reference which teaches that the innate groups of the solid mineral oxide matrix that can enter into undesirable interactions are found solely in the interior or internal pore surfaces of that matrix and not on the exterior or external surfaces thereof, such teachings being necessary to support appellants’ view of the reference.

Turning now to the pore volume requirement, appellants submit that Girot alone would not have suggested a pore volume of less than 30% of the total volume of the mineral oxide matrix because, as established by a declaration by Dr. Boschetti, a patentee in Girot, an applicant herein and employed by the common assignee,<sup>1</sup> “the purpose of [Girot] was to make the pore volume as large as possible . . . [which] is consistent with calculated pore volumes of 40 to 60% for Girot” (brief, e.g., page 10). Thus, appellants contend that Girot “relates primarily to porous silica, for which a porous volume of 0.8 to 1.2 cm<sup>3</sup>/gr equates to a pore volume of between 0.4 to 0.6 ml per ml of solid material or between 40 and 60%” (brief, page 12). Appellants contend that the “pore volume of 40 and 60% . . . is in line with” the testimony in the Boschetti declaration alleged to establish that “the purpose of the invention in [Girot] was to have a hydrogel fill the

---

<sup>1</sup> See brief, page 3, and the Boschetti declaration under 37 CFR § 1.132 filed September 25, 2002 (¶ 1.).

pores entirely, while allowing even macromolecules still to diffuse inside” and thus the pore volume is “made as large as possible, to maximize the binding capacity of the final material” (*id.*). On this basis, appellants submit that Girot “would not have led one of ordinary skill to decrease porosity, or pore volume below 30%” (*id.*). Appellants further point to col. 19, ll. 32-55, and col. 19, l. 62, to col. 20, l. 8, of Girot as being contrary to the claimed invention wherein “pore volume is minimized in order to foreclose access to the pore volume by molecules in the solution” (*id.*, pages 12-13).

With respect to the examiner’s position that Girot acknowledges that it is known in the art that “it is generally desirable to have as great a density difference as possible between the solid support particles (e.g., silica) and the fluidizing medium,” at col. 2, ll. 8-11, and similarly at col. 2, ll. 17-19, and thus it would have been “understood by one of ordinary skill in the art, [that] minimizing porosity (percent empty space) maximizes density” (answer, page 2), appellants submit that the Girot teachings “must be balanced . . . against the primary purpose” of the reference “to provide a bead in which even macromolecules can enter the pores” (brief, page 14). Thus, appellants contend that while one of ordinary skill in the art “might have been motivated to select values at the lower end of the stated pore volume range,” this person “would **not** have been motivated to extend the range lower than the endpoint of the disclosed range,” arguing that “[a] porosity of less than 30% as presently claimed is therefore not a ‘workable’ range when considered in light of the purpose of Girot” (*id.*).

The examiner addresses appellants’ calculation of the pore volume of porous silica, explaining that this dense mineral oxide exists in different densities ranging “from about 2.1 to about 2.6 grams/ cm<sup>3</sup>,” citing the 59<sup>th</sup> Edition of the *CRC Handbook of Chemistry and Physics* B-161,<sup>2</sup> and calculates the pore volume based on about 0.2 cm<sup>3</sup>/gram silica, the lower end of the disclosed range, to be “about 30%” (answer, page 10). The examiner further finds that “[m]ost claims of [Girot] are not limited to a particular porosity,” and takes the position that “[a]percent porosity of less than 30% would not prevent biomolecules from entering the pores” (*id.*, pages 10-11).

---

<sup>2</sup> Robert C. Weast, ed., Boca Raton, FLA. CRC Press, Inc. 1978.



Appellants find the examiner's findings that 0.2 cm<sup>3</sup>/gram of porous silica is "about 30%" to be "correct," but refers to "empirical studies by appellants have shown that Girot's supports possess, at the lowest end of the range, a porosity of about 40%" in maintaining the position that "[a] porosity of less than 30% . . . is not a 'workable' range . . . in light of the purpose of Girot" and there "would not have been motivation to use a pore volume less than the endpoint of Girot's range" (reply brief, page 2). Appellants further contend that even if "Girot discloses supports with a range of porosities that abuts the porosity range of the claimed supports . . . a *prima facie* case of obviousness can be overcome by showing the recited range achieves unexpected results," citing *In re Woodruff*, 919 F.2d 1575, 1577-78, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990) (reply brief, page 2). In this respect, appellants allege that the interactive polymer network is only in the pores of the supports of Girot, and not on the external surface of the support as claimed (*id.*), and that the "design and mechanism of the inventive supports are substantially different from those disclosed by Girot," noting a number of characteristics of the interactive polymer network of the reference and certain characteristics of the supports in the Girot Examples (*id.*, pages 2-3). Thus, appellants contend that "[i]n contrast to Girot's supports, . . . the inventive supports exhibit high density, low porosity, and high external surface area," arguing that rapid separation of large macromolecules from smaller molecules is achieved where "the large pore volumes described by Girot are not useful for this purpose" (*id.*, pages 2-3).

Appellants further submit that the combination of Girot and Davis would not have suggested a porosity of less than 30% because "this would be contrary to Girot's purpose" of providing an interactive polymer network in the pores," rendering "Girot unsuitable for its intended purpose" (brief, pages 15-16). The examiner notes that appellants offer "no evidence or reasoning to support this" position (answer, page 11). Appellants then submit that the examiner's position that motivation to combine is provided by the disclosure in Girot that zirconium oxide can be a porous mineral oxide solid support (answer, pages 5 and 6) is untenable because there is "no objective evidence of record that an artisan would have been motivated to combine the chromatographical supports of Girot with the teachings of Davis, which disclosed methods of fabricating sintered zirconium ceramics for use as . . . catalyst supports" (reply brief, page 5). Appellants further contend that the chromatographic supports of Girot possess "high

sorptive capacity and high porosity” and are unrelated to the catalyst supports of Davis, and thus, the combination would not have “implicated” the claimed supports with a pore volume of less than 30% to one of ordinary skill in the art (*id.*, pages 5-6).

Appellants would have us focus on Girot’s preferred porous volume range of 0.8 to 1.2 cm<sup>3</sup>/gr of solid material even though as the examiner points out, the reference discloses that the typical range is from about 0.2 to about 2 cm<sup>3</sup>/gram (Girot, col. 8, ll. 40-44 and 53-55; answer, pages 4 and 8; brief, pages 11-12). We do not find in Girot a preferred range for porous silica as argued by appellants, and indeed, the reference discloses that “[t]he most preferred mineral moiety is porous silica . . . having a porous volume of about 0.2 to about 2 cm<sup>3</sup>/g” (col. 15, ll. 47-50), which is, of course, the disclosed typical range for this variable regardless of the mineral oxide matrix. In any event, we are of the opinion that the examiner’s finding that a porous volume of about 0.2 cm<sup>3</sup>/gram of porous silica has a pore volume of “about 30%,” found to be “correct” by appellants, establishes as a matter of fact the lower end of the porous volume range for porous silica that one of ordinary skill in this art would have reasonably arrived at following the teachings of Girot.<sup>3</sup> The calculate pore volume of porous silica of *about* 30% at least abuts, as appellants acknowledge, if not slightly overlaps the upper end of the claimed pore volume range of less than 30% of appealed claims 1, 2 and 11. Thus, on this record, we determine that one of ordinary skill in the art would have reasonably expected silica solid supports so encompassed by the claims and so taught by Girot to have the same properties. *See generally, In re Geisler*, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997) (citing *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974); *Woodruff*, 919 F.2d at 1577-78, 16 USPQ2d at 1936-37; *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985); *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

---

<sup>3</sup> It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom, *see In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); *In re Aller*, 220 F.2d 454, 458-59, 105 USPQ 233, 237 (CCPA 1955), presuming skill on the part of this person. *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).



Appellants are correct that where the difference between the claimed invention and the applied prior art is in the respective ranges of a common variable as is the case here, appellants can rebut the *prima facie* case of obviousness by showing unexpected results and/or that the prior art teaches away from the claimed invention in any material respect. *Geisler*, 116 F.3d at 1470, 43 USPQ2d at 1365 (citing *Malagari*, 499 F.2d at 1303, 182 USPQ at 553). We are of the opinion that appellants have not carried either burden.

We do not find in appellants' arguments and testimony any basis for a conclusion that one of ordinary skill in this art would have been led away from the claimed invention by the teachings of Girot. The fact that on this record, 0.2 cm<sup>3</sup>/gram of porous silica, the lower end of the range for porous silica disclosed in Girot, has a pore volume range of "about 30%" casts a different light on appellants' arguments. We find that the testimony in ¶ 15 of the Boschetti declaration must be considered in the context of the teachings and inferences that one of ordinary skill in this art reasonably would have found in Girot, which teachings include the preferred as well as the unpreferred embodiments, *see generally, In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976) ("[T]he fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered."), unless the reference criticizes, discredits or otherwise discourages the selection of an embodiment, thereby teaching away from that embodiment. *See In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1145-46 (Fed. Cir. 2004).

Indeed, as the examiner points out, there is no disclosure in Girot or limitation in the claims thereof as a whole which would have taught one of ordinary skill in this art to solely make the pore volume "as large as possible, to maximize the binding capacity of the final material" in sharp contrast to the presently claimed invention as Dr. Boschetti testifies. In this respect, we have found that Girot would have taught that the interactive polymer network is found on the exterior or external surfaces as well as the interior or internal surfaces of the porous mineral oxide solid matrix and thus, the interaction with the macromolecules is not limited to the pores in the disclosure of Girot (*see above* pp. 4-5), just as the interaction with macromolecules is not limited to the external surface of the support in appealed claims 1, 2, 7 and 11 (*see above* p. 4). Furthermore, we find no evidence in the record supporting appellants' allegations in the reply

brief that their “empirical studies” establish that the lower end of the porous volume range of the mineral oxide supports of Girot, that is,  $0.2 \text{ cm}^3/\text{gram}$ , corresponds to a “porosity of about 40%,” apparently regardless of the porous mineral oxide support, such evidence being necessary in view of the examiner’s “correct” calculations based on porous silica. Thus, this argument is entitled to little, if any, weight. *See In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); *In re Payne*, 606 F.2d 303, 315, 203 USPQ 245, 256 (CCPA 1979).

Appellants have also not established unexpected results on the part of the claimed dense mineral oxide solid supports encompassed by claims 1, 2 and 11 vis-à-vis the supports taught by Girot based on a superior property or advantage. *See generally, Geisler*, 116 F.3d at 1470, 43 USPQ2d at 1365. Indeed, appellants have merely relied on the same “design and mechanism” arguments that we discussed above.

Therefore, on this record, we find that one of ordinary skill in this art routinely following the teachings of Girot would have arrived at porous silica solid matrix supports which abut or fall within the range of dense mineral oxide solid supports wherein the pore volume is less than 30% of the total mass volume of the porous silica matrix encompassed by appealed claims 1, 2 and 11. *See generally, Geisler*, 116 F.3d at 1470, 43 USPQ2d at 1365; *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1845-46 (Fed. Cir. 1989).

Turning now to the ground of rejection based on the combined teachings of Girot and Davis, the examiner finds that Girot does not disclose the pore volume % of the total volume range for any mineral oxide matrix corresponding to the disclosed porous volume range of  $0.2$  to about  $2 \text{ cm}^3/\text{gram}$ , taking the position that one of ordinary skill in the art working within Girot would have established a workable or optimum range of pore volumes to increase density within the range taught by the reference, citing *Aller*, 220 F.2d at 456, 105 USPQ at 235 (answer, pages 4 and 5-6). In this respect, the examiner finds that Girot discloses zirconium oxide, that is, zirconia, as a porous solid matrix (col. 15, l. 43), and we agree with the examiner that one of ordinary skill in the art would have been led by the reference to use this material with a pore volume in the typical range of about  $0.2$  to about  $2 \text{ cm}^3/\text{gram}$  (answer, pages 5 and 6-7). The examiner further finds that Davis discloses zirconia “having porosities less than 30% (see Tables II and III),” and with respect to claim 2, that “the density would intrinsically be in the claimed

ranges of 1.7-11 . . . if the porosity is less than <30% because zirconium oxide (which both [Girod and Davis] disclose) has a density of 5.6,” citing the 59<sup>th</sup> Edition of the *CRC Handbook of Chemistry and Physics* B-184 (answer, pages 4, 5 7 and 12; see Girod, col. 5, ll. 58-62, and col. 15, ll. 37-47). Thus, the examiner determines that it would have been obvious to one of ordinary skill in the art to employ the zirconia matrices of Davis as the porous solid matrix in Girod (*id.*, pages 5 and 6). With respect to claim 7, requiring a pore volume of 5% to 25%, which range falls within the range of claims 1, 2 and 11, the examiner finds that Davis discloses zirconia matrices in Table II which have porosity values within the claimed range (*id.*, pages 7 and 11).

We find that Davis would have disclosed to one of ordinary skill in this art a method for preparing porous catalyst supports containing zirconia which provides an increased porosity of the sintered zirconia ceramic body of >10 vol. % after firing at > 1400°C and, if the zirconia is stabilized by, e.g., yttria, the porosity of >10 vol. % was retained at firing to 1800°C (e.g., col. 2, ll. 5-23). In Davis Example I, porous yttria stabilized zirconia supports are prepared with the porosity results reported in Davis Table II wherein thirteen samples fall in the range of 0.3 vol. % to 24.9 vol. %, twelve samples fall in the range of 25. 2 vol. % to 29.3 vol. %, and five samples fall in the range of 30.2 vol. % to 33.6 vol. %. We note that the 64<sup>th</sup> Edition of the *CRC Handbook of Chemistry and Physics* B-155 states that Yttria has a density of 5.01,<sup>4</sup> and that the mineral oxide support of appealed claim 1 can comprise yttria stabilized zirconia, which combination is provided for in appealed claim 9.

We find that the combined teachings of Girod and Davis provide substantial evidence in support of the examiner’s position. Indeed, appellants do not dispute that Davis discloses porous zirconia and yttria stabilized zirconia solid matrices within the disclosure of porous solid mineral oxide supports in Girod and which satisfy the requirements for a mineral oxide matrix in appealed claims 1, 2, 7 and 11. We are not convinced by appellants’ arguments that one of ordinary skill in the art would not have combined these references. Indeed, this person would have recognized that the supports of Davis satisfy the teachings of Girod even though Davis discloses a different utility, and we found above that the teachings of Girod are not limited to supports with a pore

---

<sup>4</sup> Robert C. Weast, ed., Boca Raton, FLA. CRC Press, Inc. 1983.

volume of 30% or greater.

Appellants' arguments with respect to appealed claims 2 and 11 (brief, page 16) are not convincing because we agree with the examiner's findings that porous silica and zirconia as well as yttria fall within the claimed density range in claim 2 (*see* Girot, col. 8, ll. 58-60), and that Girot discloses the use of "polysaccharides such as dextran" (col. 16, l. 59) which satisfies claim 11.


Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in Girot alone and as combined with Davis with appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1 through 22 and 59 through 63 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

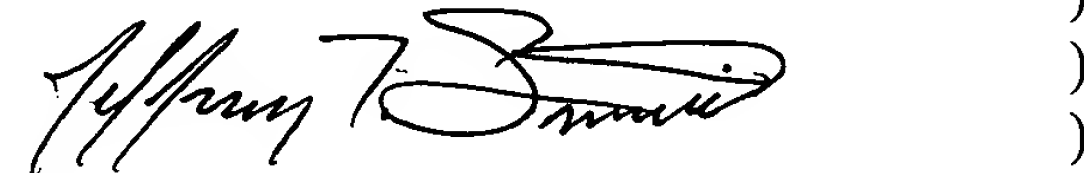
The examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective September 13, 2004; 69 Fed. Reg. 49960 (August 12, 2004); 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)).

AFFIRMED

  
BRADLEY R. GARRIS  
Administrative Patent Judge

  
CHARLES F. WARREN  
Administrative Patent Judge

  
JEFFREY T. SMITH  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS AND  
INTERFERENCES

Appeal No. 2005-0209  
Application 09/274,014

Leydig Voit & Mayer, LTD  
700 Thirteenth St., NW  
Suite 300  
Washington, DC 20005-3960